We claim:

1. A ferroelectric capacitor comprising:

a support insulating film on an integrated circuit substrate and having a trench therein;

a lower electrode on sidewalls and a bottom surface of the trench;

a seed conductive film covering the lower electrode;

a ferroelectric film on the support insulating film and the seed conductive film; and

an upper electrode on the ferroelectric film.

2. The ferroelectric capacitor of Claim 1 wherein the lower electrode fills the trench and wherein the ferroelectric film extends over all of the seed conductive film and the support insulating film adjacent the seed conductive film.

3. The ferroelectric capacitor of Claim 1 wherein the lower electrode includes an upper portion thereof extending from the trench to a height relative to the integrated circuit substrate greater than a height of the support insulating film and wherein the seed conductive film covers the upper portion of the lower electrode extending from the trench.

4. The ferroelectric capacitor of Claim 1, further comprising:

an insulating film between the support insulating film and the substrate; and

a contact plug extending through the insulating film and electrically connecting the lower electrode to an active region of the integrated circuit substrate.

5. The ferroelectric capacitor of Claim 3 wherein the support insulating film comprises titanium oxide.

6. The ferroelectric capacitor of Claim 1 wherein the seed conductive film comprises platinum and wherein the ferroelectric film comprises $SrTiO_3$, $BaTiO_3$, $(Ba,Sr)TiO_3$, $Pb(Zr,Ti)O_3$, $SrBi_2Ta_2O_9$, $(Pb,La)(Zr,Ti)O_3$ and/or $Bi_4Ti_3O_{12}$.

7. The ferroelectric capacitor of Claim 1 wherein the lower electrode comprises a multilayer structure including a lower noble metal layer and an upper noble metal layer with a conductive oxide layer of the lower noble metal therebetween and wherein the lower noble metal layer and the conductive oxide layer are conformal to the sidewalls and the bottom surface of the trench and the upper noble metal layer fills portions of the trench not filled by the lower noble metal layer and the conductive oxide layer.

8. The ferroelectric capacitor of Claim 7 wherein the seed conductive film comprises platinum.

9. The ferroelectric capacitor of Claim 7 wherein the upper noble metal layer and the lower noble metal layer comprise platinum, ruthenium, iridium, rhodium, osmium and/or palladium and wherein the conductive oxide layer comprises ruthenium dioxide and/or iridium dioxide.

10. The ferroelectric capacitor of Claim 1 wherein the lower electrode and the upper electrode comprise a noble metal and/or an oxide thereof.

11. The ferroelectric capacitor of Claim 10 wherein the noble metal comprises platinum, ruthenium, iridium, rhodium, osmium and/or palladium.

12. An integrated circuit memory device having a plurality of cells arranged in a cell array, ones of the cells including the ferroelectric capacitor of Claim 1.

13. A method for forming a ferroelectric capacitor, the method comprising:

forming a support insulating film on an integrated circuit substrate;

patterning the support insulating film to form a trench therein;

forming a lower electrode in the trench;

forming a seed conductive film covering the lower electrode;

forming a ferroelectric film on the support insulating film and the seed conductive film; and

forming an upper electrode on the ferroelectric film.

14. The method of Claim 13 wherein the ferroelectric film extends over all of the seed conductive film and the support insulating film adjacent the seed conductive film.

15. The method of Claim 13 wherein the support insulating film comprises titanium oxide and wherein the seed conductive film comprises platinum and wherein the ferroelectric film comprises $SrTiO_3$, $BaTiO_3$, $(Ba,Sr)TiO_3$, $Pb(Zr,Ti)O_3$, $SrBi_2Ta_2O_9$, $(Pb,La)(Zr,Ti)O_3$ and/or $Bi_4Ti_3O_{12}$.

16. The method of Claim 13 wherein forming the lower electrode comprises:

forming a noble metal and/or a conductive oxide of the noble metal on sidewalls and a bottom surface of the trench and on the support insulating film to fill the trench; and

planarizing the formed noble metal and/or conductive oxide of the noble metal to expose the support insulating film.

17. The method of Claim 16 wherein the support insulating film comprises titanium oxide and wherein the seed conductive film comprises platinum and wherein the ferroelectric film comprises $SrTiO_3$, $BaTiO_3$, $(Ba,Sr)TiO_3$, $Pb(Zr,Ti)O_3$, $SrBi_2Ta_2O_9$, $(Pb,La)(Zr,Ti)O_3$ and/or $Bi_4Ti_3O_{12}$.

18. The method of Claim 16 wherein the noble metal comprises platinum, ruthenium, iridium, rhodium, osmium and/or palladium.

19. The method of Claim 13 wherein patterning the support insulating film is preceded by forming a planarization stop layer on the support insulating film and wherein forming the lower electrode comprises:

forming a noble metal and/or an oxide of the noble metal on the sidewalls and the bottom surface of the trench and on the planarization stop layer to fill the trench;

planarizing the formed noble metal and/or conductive oxide of the noble metal to expose the planarization stop layer; and

removing the exposed planarization stop layer.

20. The method of Claim 19 wherein the support insulating film comprises titanium oxide, the seed conductive film comprises platinum and the ferroelectric film comprises $SrTiO_3$, $BaTiO_3$, $(Ba,Sr)TiO_3$, $Pb(Zr,Ti)O_3$, $SrBi_2Ta_2O_9$, $(Pb,La)(Zr,Ti)O_3$ and/or $Bi_4Ti_3O_{12}$.

21. The method of Claim 19 wherein the planarization stop layer comprises a material having an etch selectivity with respect to the lower electrode.

22. The method of Claim 21 wherein the planarization stop layer comprises silicon nitride.

23. The method of Claim 19 wherein the noble metal comprises platinum, ruthenium, iridium, rhodium, osmium and/or palladium.

24. The method of Claim 13 wherein the ferroelectric film comprises $SrTiO_3$, $BaTiO_3$, $(Ba,Sr)TiO_3$, $Pb(Zr,Ti)O_3$, $SrBi_2Ta_2O_9$, $(Pb,La)(Zr,Ti)O_3$ and/or $Bi_4Ti_3O_{12}$.

25. The method of Claim 15 wherein forming the seed conductive film comprises:

forming a seed conductive material on the patterned support insulating film and on the lower electrode; and

patterning the seed conductive material to expose portions of the support insulating film while leaving seed conductive material covering the lower electrode.

26. The method of Claim 13 wherein forming the lower electrode comprises:

forming a noble metal and/or a conductive oxide of the noble metal on sidewalls and a bottom surface of the trench and on the support insulating film;

forming a sacrificial oxide film on the formed noble metal and/or conductive oxide to fill the trench;

planarizing the formed sacrificial oxide film to expose the support insulating film; and

removing the sacrificial oxide film.

27. The method of Claim 26 wherein forming the seed conductive film comprises:

forming a seed conductive material on the exposed support insulating film and on the lower electrode to fill the trench; and

patterning the seed conductive material to expose portions of the support insulating film while leaving seed conductive material covering the lower electrode.

28. The method of Claim 13 wherein the forming the lower electrode comprises:

conformally forming a lower noble metal on sidewalls and a bottom surface of the trench and on the support insulating film;

conformally forming a conductive oxide of the lower noble metal on the lower noble metal;

forming an upper noble metal on the conductive oxide to fill the trench; and

planarizing the formed upper noble metal to expose the support insulating film.

29. The method of Claim 28 wherein the upper noble metal and the lower noble metal comprise platinum, ruthenium, iridium, rhodium, osmium and/or palladium and wherein the conductive oxide comprises ruthenium dioxide and/or iridium dioxide.

30. The method of Claim 29 wherein the seed conductive film and the upper noble metal comprise platinum and wherein the support insulating film comprises titanium oxide and wherein the lower noble metal comprises iridium and wherein the conductive oxide comprises iridium oxide.

31. A method for forming a ferroelectric capacitor, the method comprising:

forming a support insulating film on an integrated circuit substrate;

forming a planarization stop layer on the support insulating film;

patterning the planarization stop layer and the support insulating film to form a trench therein;

forming a lower electrode film on sidewalls and a bottom surface of the trench and on the planarization stop layer to fill the trench;

planarizing the resultant substrate to until the planarization stop layer is exposed, to form a lower electrode separated in a cell unit;

removing the exposed planarization stop layer;

forming a seed conductive film covering the exposed lower electrode;

forming a ferroelectric film on an entire surface of the support insulating film and on the seed conductive film; and

forming an upper electrode on the ferroelectric film.

32. The method of Claim 31 wherein forming the lower electrode film comprises:

conformally forming iridium and iridium dioxide on the sidewalls and the bottom surface of the trench and on the planarization stop layer; and

forming platinum on the iridium dioxide to fully fill the trench; and

wherein forming the seed conductive film comprises:

forming a seed conductive material on the support insulating film and on a protruded portion of the lower electrode; and

patterning the seed conductive material to allow the seed conductive material to cover the lower electrode.

33. The method of Claim 31 wherein the planarization stop layer is formed of silicon nitride, the support insulating film is formed of titanium oxide, the seed conductive film is formed of platinum and the ferroelectric film is formed of $Pb(Zr,Ti)O_3$.